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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,876	02/28/2002	Wen-Chih Ho	U 013892-6	7275

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EXAMINER

COLON, GERMAN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/084,876

Applicant(s)

HO, WEN-CHIH

Examiner

German Colón

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,5-18,21 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5-18,21 and 22 is/are rejected.
- 7) ☒ Claim(s) 1 and 6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1003.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Amendment***

1. The Amendment, filed on October 16, 2003, has been entered and acknowledged by the Examiner.
2. Cancellation of claims 3, 4, 19 and 20 has been entered.

### ***Claim Objections***

3. Claims 1 and 6 are objected to because of the following informalities:

Claim 1 seems to have a typographical error. Line 3 recites the limitation “light-scattering *articles*”, however, the specification provides support for “light-scattering *particles*”.

Claim 6 seems to have a typographical error. Line 2 recites the limitation of “expressure *for* condensation” however, the specification provides support for “expressure *or* condensation”.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1, 2, 5-9, 11-17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Takahashi et al. (US 2002/0043926).

Regarding claim 1, Takahashi discloses a light-mixing layer comprising: light-scattering particles for scattering the light emitted from the light source, wherein the light scattering particles are made of glass or polymeric transparent materials (see paragraph [0083], lines 6-8);

phosphor particles (see paragraph [0083], line 1) for converting a portion of the light originating from the light source into another wavelength of light ; and

diffuser particles for mixing the light emitted from the light-scattering particles and the phosphor particles, wherein the diffuser particles are selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see paragraph [0084]);

wherein the light-scattering particles, phosphor particles and diffuser particles are arranged in a particle-interlaced order.

Regarding claim 2, Takahashi discloses a light-mixing layer having light-scattering particles, phosphor particles and diffuser particles. The method of making the product, i.e. by printing process, dispersion, spin, evaporation, or sputtering, is not germane to the issue of patentability of the product itself; therefore, the limitation of “the light-scattering particles, diffuser particles and phosphor particles being made by a process...” has not been given patentable weight.

Regarding claim 5, Takahashi discloses the phosphor particles being made of an inorganic phosphor matter (see paragraph [0082], lines 1-3).

Referring to claims 6-8, claims 6-8 are rejected over the reasons stated in the rejection of claim 2.

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Referring to claim 9, Takahashi discloses the light-mixing layer keeping a distance from the light source, and absorbing light emitted from the light source by reflection (see Figs. 1, 10 and 18).

Referring to claim 11, Takahashi discloses an LED comprising a chip 10, a chip cup 33 (see at least Fig. 18), electrodes and a transparent encapsulant 50, wherein the LED component includes a light-mixing layer including light-scattering particles made of glass or polymeric transparent materials (see paragraph [0083], lines 6-8), phosphor particles and diffuser particles selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see paragraph [0084]), wherein said particles are arranged in particle-interlaced order.

Regarding claims 12-14, claims 12, 13 and 14 are rejected over the reasons stated in the rejection of claims 6, 7 and 8, respectively.

Regarding claim 15, Takahashi discloses the light-mixing layer keeping a distance from the light source, and absorbing light emitted from the light source by reflection (see Figs. 1, 10 and 18).

Regarding claim 16, Takahashi discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles; wherein the light scattering particles are made of glass or polymeric transparent materials (see paragraph [0083], lines 6-8), while the diffuser particles are selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see paragraph [0084]);

utilizing the light-scattering particles to scatter the light emitted from the light source;

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light; and

utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles.

Regarding claim 17, Takahashi discloses the light-mixing layer being made by a sputtering process (see paragraph [0098], lines 7-10).

Referring to claim 21, Takahashi discloses the phosphor particles being made of an inorganic phosphor matter (see paragraph [0082], lines 1-3).

6. Claims 1, 2, 5-8, 10, 16, 18 and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Collins III et al. (US 6,642,652).

Regarding claim 1, Collins III discloses a light-mixing layer comprising: light-scattering particles for scattering the light emitted from the light source, wherein the light scattering particles are made of glass or polymeric transparent materials (see Col. 3, lines 51-52, and Col. 5, lines 14-15);

phosphor particles (see Col. 5, lines 47-50) for converting a portion of the light originating from the light source into another wavelength of light ; and

diffuser particles for mixing the light emitted from the light-scattering particles and the phosphor particles, wherein the diffuser particles are selected from  $Ti_2O_3$  (see Col. 5, line 65, and Col. 6, lines 10-11);

wherein the light-scattering particles, phosphor particles and diffuser particles are arranged in a particle-interlaced order.

Regarding claim 2, Collins III discloses a light-mixing layer having light-scattering particles, phosphor particles and diffuser particles. The method of making the product, i.e. by printing process, dispersion, spin, evaporation, or sputtering, is not germane to the issue of patentability of the product itself; therefore, the limitation of “the light-scattering particles, diffuser particles and phosphor particles being made by a process...” has not been given patentable weight.

Regarding claim 5, Collins III discloses the phosphor particles being made of an inorganic phosphor matter (see Col. 5, lines 47-50).

Referring to claims 6-8, claims 6-8 are rejected over the reasons stated in the rejection of claim 2.

Referring to claim 10, Collins III discloses the light scattering particles occupying 10-70 wt. %, the phosphor particles occupying 10-65 wt% and the diffuser particles occupying 15-60 wt. % (see Col. 5, line 59 to Col. 6, line 3).

Referring to claim 16, Collins III discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles; wherein the light scattering particles are made of glass or polymeric transparent materials (see Col. 3, lines 51-52, and Col. 5, lines 14-15), while the diffuser particles are selected from  $Ti_2O_3$  (see Col. 5, line 65, and Col. 6, lines 10-11);

utilizing the light-scattering particles to scatter the light emitted from the light source;

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light; and

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utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles.

Referring to claim 18, Collins III discloses the arrangement of light-scattering particles, phosphor particles and diffuser particles being dependent on a usage of solidification (see Col. 3, line 50, and Col. 5, lines 13-14).

Regarding claim 22, claim 22 is rejected over the reasons stated in the rejection of claim 10.

7. Claims 1, 2, 5-9, 11-16 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (US 5,998,925).

Regarding claim 1, Shimizu discloses a light-mixing layer comprising: light-scattering particles for scattering the light emitted from the light source, wherein the light scattering particles are made of glass or polymeric transparent materials (see Col. 16, lines 58-59, and Col. 17, lines 17-18);

phosphor particles (see Col. 16, line 60) for converting a portion of the light originating from the light source into another wavelength of light ; and

diffuser particles for mixing the light emitted from the light-scattering particles and the phosphor particles, wherein the diffuser particles are selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see Col. 16, lines 60-61, and Col. 17, lines 18-19);

wherein the light-scattering particles, phosphor particles and diffuser particles are arranged in a particle-interlaced order.



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Regarding claim 2, Shimizu discloses a light-mixing layer having light-scattering particles, phosphor particles and diffuser particles. The method of making the product, i.e. by printing process, dispersion, spin, evaporation, or sputtering, is not germane to the issue of patentability of the product itself; therefore, the limitation of “the light-scattering particles, diffuser particles and phosphor particles being made by a process...” has not been given patentable weight.

Regarding claim 5, Shimizu discloses the phosphor particles being made of an inorganic phosphor matter (see Col. 18, lines 3-5).

Referring to claims 6-8, claims 6-8 are rejected over the reasons stated in the rejection of claim 2.

Referring to claim 9, Shimizu discloses the light-mixing layer keeping a distance from the light source, and absorbing light emitted from the light source by reflection (see Figs. 1 in view of Col. 16, lines 54-62, and Col. 17, lines 16-22).

Referring to claim 11, Shimizu discloses an LED comprising a chip **102**, a chip cup **105** (see Fig. 1), electrodes and a transparent encapsulant **104**, wherein the LED component includes a light-mixing layer including light-scattering particles made of glass or polymeric transparent materials (see Col. 16, lines 58-59, and Col. 17, lines 17-18), phosphor particles and diffuser particles selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see Col. 16, lines 60-61, and Col. 17, lines 18-19), wherein said particles are arranged in particle-interlaced order.

Regarding claims 12-15, claims 12, 13, 14 and 15 are rejected over the reasons stated in the rejection of claims 6, 7, 8 and 9, respectively.

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Regarding claim 16, Shimizu discloses a method of making a light-mixing layer comprising:

providing a light-mixing layer including light-scattering particles, phosphor particles and diffuser particles; wherein the light scattering particles are made of glass or polymeric transparent materials (see Col. 16, lines 58-59, and Col. 17, lines 17-18), while the diffuser particles are selected from the group consisting of BaTiO<sub>3</sub> and Ti<sub>2</sub>O<sub>3</sub> (see Col. 16, lines 60-61, and Col. 17, lines 18-19);

utilizing the light-scattering particles to scatter the light emitted from the light source;

utilizing the phosphor particles to convert a portion of the light generating from the light source into another wavelength light; and

utilizing the diffuser particles to mix the light emitted from the light-scattering particles and the phosphor particles.

Regarding claim 21, claim 21 is rejected over the reasons stated in claim 5.

### ***Response to Arguments***

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

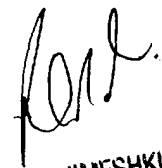
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 703-305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

gc

  
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